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From the Director's Desk



The July issue of the *Journal of Safety Research* features a special section on the November 2004 NIOSH Economic Evaluation Conference.

UPDATE on Nanotechnology

NIOSH announces a new web newsletter, new conference report and information on upcoming nanotechnology conference.

Preventing Power Line Fatalities: NIOSH Resources

NIOSH spotlights resources to educate public on dangers of working near power lines.

NIOSH Spotlights Resources to Avoid Dangers Associated with Weather-related Events

The Storm and Flood Clean-up and Heat Stress Topic pages offer valuable resources for remaining safe during these potentially life-threatening events.

Potential School Health Risks from Pesticide Exposures Found

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From the Director's Desk

Last November, NIOSH joined with the World Health Organization (WHO) to convene a conference on identifying successful tools for evaluating the economic impact of occupational health and safety interventions. The *Economic Evaluation of Occupational Health and Safety Interventions at the Company Level* conference brought together global representatives from health and safety, research, economics and management from both developed and developing nations. Their charge was to examine the current state of the use of economic knowledge and tools to demonstrate the economic gains from occupational health and safety interventions.

Now, as a follow-up to that conference of global importance, we are pleased to report that the invited presentations from the meeting, describing six key economic evaluation tools currently in use at the company level, are highlighted in the July issue of the *Journal of Safety Research*. The special section, "Proceedings from the Economic Evaluation of Health and Safety Interventions at the Company Level Conference," is devoted to these evaluation tools and recommendations for moving forward in this area of research.

The six economic evaluation tools include:

- The *Productivity Assessment Tool*, a computer-based program to calculate the cost benefit differences between pre- and post intervention focusing on productivity changes, developed and presented by Maurice Oxenburgh of Australia.
- The *Tool Kit*, designed to perform risk assessments, make cause-effect relationships, improve decision making, and calculate the cost-benefit of the intervention, developed for use in Central American garment factories and presented by Rafael Amador Rodezno of Nicaragua.
- *Participation for Understanding*, a participative-based model gauging employers' and employees' feedback on the costs, benefits and effects of interventions, developed and presented by Ernst Koningsveld of the Netherlands.
- The *Potential*, an economic analysis instrument to demonstrate changes in working conditions, developed for use in Finland and Sweden and presented by Monica Bergstrom of Finland.
- *Net-Costs*, an instrument for data collection and analysis at the facility level, for the economic evaluation of interventions to reduce work-related low back pain, developed for the WHO and presented by Supriya Lahiri of the U.S.
- *Return on Health, Safety and Environmental Investments (ROHSEI)* for building and communicating a business case to address any type of safety, health or environmental project, developed by ORC and presented by Joanne Linhard of the U.S.

In addition, this special section includes a summary report of discussions on whether current economic evaluation and data collection tools accurately calculate the costs and benefits of occupational safety and health interventions. Discussion groups divided into four target groups made the following observations:

- Corporate enterprises created a five-tiered approach to economic evaluation consisting of: surveillance, identifying the most important problems, designing the intervention, conducting the economic evaluation, and communicating with decision makers.
- Economic theorists identified basic yet critical components of an economic evaluation tool or model: it should stimulate thinking, it should be transparent, it should be flexible, it should calculate productivity of labor and capital, and it should contain embedded cases and a case repository.

- Small and medium enterprises specifically addressed components unique to their particular situation: user-friendliness, a focus on effect, simple and easy to use.
- Developing and transitioning nations identified important issues for moving the evaluation tool or method to the field: funding, identifying and utilizing all workable strategies to create awareness and willingness at all levels, establishing an independent effort to compare models, sharing information on models, improving and making them user friendly, tailoring them for developing and transitioning nation settings, and applying a participatory approach for training employers and employees.

Abstracts for these special section articles can be accessed at <http://www.sciencedirect.com/science/journal/00224375>.

Following the November conference, NIOSH established an institute-wide team to implement suggestions made by attendees for ways in which NIOSH could increase the use and visibility of economics research. This internal working group, “Economic Evaluation of OSH Interventions at Company Level” is comprised of four task groups:

- Communications: charged with developing a NIOSH economics topic page and listserv and creating a solutions database.
- Education and Training: charged with educating internal staff and external partners in the latest economic evaluation tools and methods.
- Modeling: charged with comparing current economic models and developing new models for future research.
- Research: charged with developing a social marketing plan and implementing economic research needs into the National Research Agenda.

Stay tuned to future issues of *eNews* for updates on this team's progress and new developments in economics research. NIOSH solicits your ideas and suggestions for including economics research in the occupational safety and health field. Please send your comments to us at NIOSHNews@cdc.gov.

UPDATE on Nanotechnology

‘Focus on Nanotechnology’ Web Reports on NIOSH Research

NIOSH on July 26, 2005, introduced “Focus on Nanotechnology: Occupational Safety and Health Applications and Implications Research at NIOSH.” This web newsletter at <http://www.cdc.gov/niosh/topics/nanotech/focus.html> will provide regular, timely information about developments in NIOSH’s strategic research program on nanotechnology. NIOSH conducts its multidisciplinary research program with a diverse community of partners under the National Nanotechnology Initiative (NNI). Consistent with the NNI’s goals, the program is intended to advance new studies that will help support the responsible development of nanotechnology, and help maintain U.S. competitiveness in this new industrial revolution. The products of this research will help practitioners, with greater certainty, to apply the well-established principles of occupational safety and health to workplace exposures involving nanomaterials.



First International Symposium on Nanotechnology and Occupational Health-Final Report

On July 1, 2005, the United Kingdom Health and Safety Executive (HSE) released the final report from the October 2004 *First International Symposium on Nanotechnology and Occupational Health*. The conference, co-sponsored by NIOSH and the HSE, brought researchers, decision makers, occupational health professionals and other stakeholders together to discuss what is known and what scientists still need to discover about the occupational impact of nanotechnology. This report includes abstracts from the plenary sessions, workshop summaries and recommendations for addressing existing information gaps. The report can be accessed at <http://www.cdc.gov/niosh/topics/nanotech/1sympfinal.html>.

International Symposium: Biomedical Aspects of Nano-Toxicology

NIOSH will sponsor an international symposium, "Nano-Toxicology: Biomedical Aspects," on Jan. 29-Feb. 1, 2006, in Miami, Fla. The deadline for registration at the advance rate of \$650 is October 1, 2005. There will be an additional \$100 charge for registration after October 1 and for on-site registrations. Invited speakers from the U.S. and abroad will address key issues for assessing the toxicology of nanomaterials and determining if such materials pose an occupational health risk. Other sponsoring organizations are the University of Pittsburgh, Inter Health Neutraceuticals, the U.S. Environmental Protection Agency, and Avanti Polar Lipids, Inc., Alabaster (USA). Additional details and a registration form are available at <http://www.pitt.edu/~nanotox/index.htm>. For a printable copy of the conference information brochure, visit http://www.pitt.edu/~nanotox/Files/NanoTox_Brochure06.pdf.

Preventing Power Line Fatalities: NIOSH Resources

Electrocutions from unintentional contact with overhead power lines can be prevented through awareness of the hazard and proper precautions. NIOSH offers many resources to help employers, employees, volunteers, and others identify potential risks when working under and around power lines, and to help them work safely to avoid touching the lines with poles, ladders, or other objects that can conduct electricity.



Electrocutions from contact with overhead power lines result in 128 work-related fatalities on average per year. On July 25, 2005, news outlets reported on the deaths of four adult Boy Scout leaders, and injuries to three other adults, when a tent pole apparently struck an overhead power line at the Boy Scouts' national gathering, according to the press accounts. "Power lines are such a common feature of the landscape that any given job may put workers and others in proximity to an uninsulated line," said NIOSH Director John Howard, M.D. "It is critical to recognize the potential hazard and prevent tragedy." For additional information on NIOSH resources, see <http://www.cdc.gov/niosh/updates/upd-07-26-05-b.html>.

NIOSH Spotlights Resources to Avoid Dangers Associated with Weather-related Events

In anticipation of the arrival of Hurricane Emily and the stifling summer temperatures that left parts of the U. S. bearing triple digit heat indices, NIOSH posted resources and information for those working in the affected areas.

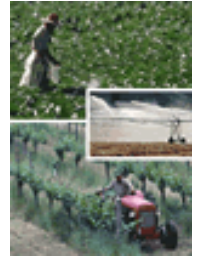
- The Storm and Flood Clean-up Topic page, <http://www.cdc.gov/niosh/topics/flood>, reminds workers of the potential dangers associated with hurricane clean-up, including electrical hazards, tree removal, and carbon monoxide poisoning.
- The Heat Stress Topic page, <http://www.cdc.gov/niosh/topics/heatstress>, reminds workers of the potential dangers associated with working in hot environments.



Hurricane Emily resulted in at least 70 deaths in the U.S. and the Caribbean and the scorching summer temperatures have led at least 40 deaths across the U.S.

Potential School Health Risks from Pesticide Exposures Found

Data from a new national analysis indicate that exposures to pesticides can pose a risk for employees and students in schools, according to a study by two NIOSH scientists and other colleagues reported on July 27 in the *Journal of the American Medical Association*. During the period 1998-2002, illness surveillance data identified 2,593 cases of acute illnesses associated with pesticide exposures at schools. Measures for preventing such illnesses should include implementation of integrated pest-management programs in schools, practices to reduce pesticide drift from neighboring farm fields, and adaptation of pesticide spray buffer zones around schools, recommended Walter A. Alarcon and Geoffrey M. Calvert of NIOSH, and 13 colleagues from other federal and state agencies. An abstract of the article is available at <http://jama.ama-assn.org/cgi/content/short/294/4/455>. Additional information on pesticide illness and injury prevention is available from NIOSH at <http://www.cdc.gov/niosh/topics/pesticides>.



NIOSH, European Agency Launch Joint Web Site

NIOSH and the European Agency for Safety and Health at Work have launched a joint Web site to provide the occupational safety and health (OSH) community with improved access and sharing of the vast pool of European and American OSH expertise and research. The Web site follows the structure and presentation of the European Agency's Web site network and represents a significant contribution to the creation of a global portal to workplace safety and health information. The Web site can be accessed at <http://www.cdc.gov/niosh/usnetwork>.



Captain Janice Huy Named New Chief Dietitian Officer USPHS

NIOSH congratulates Janice Huy, who holds the rank of Captain in the U.S. Public Health Service (USPHS), on being named the new Chief Dietitian Officer for the Public Health Service. In this senior position, Captain Huy will provide leadership and coordination of USPHS dietitian professional affairs for the Office of the Surgeon General and the U.S. Department of Health and Human Services. Additionally, she will provide guidance and advice to the Surgeon General and the Dietitian and Nutritionist Professional Advisory Committee on recruitment, retention and career development of USPHS dietitians and nutritionists. Captain Huy is the Deputy Director of the NIOSH Office of Research and Technology Transfer.

r2p Corner

r2p Focus of NORA Conference on Musculoskeletal Disorder Risk

The National Occupational Research Agenda (NORA) Musculoskeletal Disorders (MSD) Team is co-sponsoring a working research conference titled "The Changing Nature of Musculoskeletal Disorder Risk: The Effects of Obesity and Aging in the American Workplace," to be held on September 7-8, 2005, in Seattle, Washington. Fundamental population changes in age and obesity will affect the design of work, workstations, and products. This workshop will build on existing MSD research which included age and body mass index in statistical models. Speakers will present the magnitude and complexity of these issues and their implications for MSD in the workplace. After initial presentations, the conference participants will work on a research agenda necessary to translate research findings to changing practices in the workplace. The objective of the conference is to develop a research to practice roadmap for addressing the changing nature of MSD risk in the workplace. Attendees are expected to include musculoskeletal researchers, policy makers, and occupational safety, health and ergonomics managers. Information about the conference is available at <http://depts.washington.edu/ehce/NWcenter/course/MDR05.htm>.



NIOSH Grantee Designs Ergonomic Interventions for the Fire Service

With NIOSH grant funding, researchers at the University of Illinois Chicago (UIC) are designing and evaluating ergonomic interventions that have the potential to reduce the high number of musculoskeletal injuries experienced by firefighters, paramedics, and emergency medical technicians (EMTs) during emergency medical service (EMS) operations. Karen Conrad, Paul Reichelt, and Steve Lavender designed their research to have a very high level of participation with the fire service.

The UIC team began their project by conducting multiple rounds of focus groups with fire service personnel to generate ergonomic intervention concepts to improve the conduct of frequently performed and strenuous EMS tasks. Working with the fire service, the most highly ranked of these intervention ideas were then turned into alpha prototypes of devices. The devices were tested in their ergonomics laboratory by having firefighters and paramedics perform common patient handling tasks (e.g., carrying a patient down a flight of stairs) using the new devices and their standard equipment.

Using both the biomechanical data and evaluative feedback from the fire service personnel about the performance of the alpha prototypes, the researchers are now preparing to collect further evaluative data to facilitate the development of beta prototypes that can serve as manufacturing models. The university team will continue to work with the fire service to develop effective strategies for dissemination and implementation of the devices.

For additional information about this project, please contact Karen Conrad at kmconrad@uic.edu.

NORA

Building on the success of the original 21 NORA priority areas, NIOSH and its partners are preparing for a new generation of occupational safety and health research. This research will be organized by sectors and will be led by nine new Research Councils.

More information about the sector approach can be found on the NORA Web page, <http://www.cdc.gov/niosh/nora>.



The mission of the eight NORA Sector Research Councils* will be to develop and maintain sector specific research strategies. These strategies will address the most important safety and health problems. Representing all stakeholders, the councils will use an open process to set research goals for addressing these problems and develop strategies and partnerships to promote improved workplace practices.

Interested in helping shape the future of workplace safety and health? Volunteer for a NORA Sector Research Council by contacting Sid Soderholm at noracoordinator@cdc.gov.

*Concerned that eight doesn't equal nine?! Stay tuned to eNews or visit the NORA Web page to learn about the NORA Cross-Sector Research Council.

News From Our Partners

eLCOSH: 5 years for construction safety and health

August 1 marks the fifth year the Electronic Library of Construction Occupational Safety and Health (eLCOSH) has been available online. eLCOSH is a valuable resource supported by NIOSH and available at <http://www.eLCOSH.org>.

The Web site provides user-friendly information to help workers, small contracting firms, safety managers, and others reduce injuries and illnesses in the construction industry.



eLCOSH offers brochures, training materials, power point presentations, videos and other materials from a wide range of sources. These include trade magazines, labor-management programs, state agencies, and research projects conducted at NIOSH and academia. Annotated links feature more than 50 construction safety and health related Web sites. The Web site has grown to include 767 documents, including 132 in Spanish and also features a separate Spanish site map.

eLCOSH is coordinated by the Center to Protect Workers' Rights, a research, training and service arm of the 15 construction unions in the AFL-CIO, with technical support from Conceptual Arts, Inc. eLCOSH can be accessed via the NIOSH Web page, <http://www.cdc.gov/niosh/elcosh.html>. NIOSH construction resources can be accessed at <http://www.cdc.gov/niosh/topics/construction>.

Communication Products

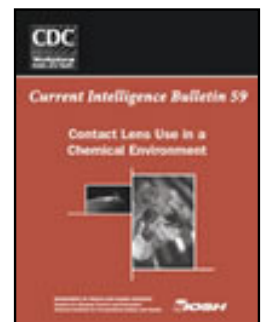
Mining Roof Bolting Machine Safety: A Study of the Drill Boom Vertical Velocity **NIOSH Pub. No. 2005-128**

Researchers at the Pittsburgh Research Laboratory present study results examining the boom arm vertical speed for roof bolting machines. Using a unique computer simulation model employing a virtual human, vision tracking, and generating random human motions and risky work behaviors, researchers studied a moving boom arm appendage at different speeds during different work scenarios. Results indicate that contact incidents were always greater when the boom was moving up, always greater on the hand, and always greater for the boom arm part of the machine. Researchers also found that controlling the boom speed was the most important factor in determining the risk of an operator making contact. Detailed results of the study are available by accessing the full text document at <http://www.cdc.gov/niosh/docs/2005-128>.



Current Intelligence Bulletin 59: Contact Lens Use in a Chemical Environment **NIOSH Pub. No. 2005-139**

After the review of guidelines, company policies and the limited literature, NIOSH has issued a Current Intelligence Bulletin (CIB) to disseminate new scientific information and make recommendations on contact lens use in a chemical environment. The CIB can be accessed at <http://www.cdc.gov/niosh/docs/2005-139>.



Injury data are lacking to indicate that contact lens wear should be restricted during work with hazardous chemicals; therefore, NIOSH recommends that contact lens wear be permitted provided that the safety guidelines presented in this CIB are followed.

Health Hazard Evaluation (HHE): Noise Exposures among Medical Transcriptionists

HHE

A local union representing medical transcriptionists at several California hospitals submitted a health hazard evaluation (HHE) request because of concerns about excessive noise exposures. Through a field evaluation and an extensive laboratory study, NIOSH investigators evaluated noise levels delivered through headsets transcriptionists wear while recording medical records onto computer files. NIOSH investigators determined that noise levels can be excessive when specific settings are used on the dictaphone. NIOSH recommended strategies to reduce the noise levels and improve the clarity of the dictation and noted that it may be prudent to implement routine audiometric testing. The report is available at <http://www.cdc.gov/niosh/hhe/reports/pdfs/2003-0273-2974.pdf>. More information on HHEs can be found at <http://www.cdc.gov/niosh/hhe>.

Health Hazard Evaluation (HHE): Metals Exposures at a Scrap Metal Recycling Facility

HHE

Company managers requested NIOSH assistance in assessing the need for showers for employees exposed to lead. For workers cutting scrap metal with oxygen and propane torches, NIOSH investigators found exposures to lead, cadmium, nickel, copper, and arsenic above the Occupational Safety and Health Administration (OSHA) [permissible exposure limit](#) or NIOSH [recommended exposure limit](#). NIOSH informed the employer of the need to comply with the substance-specific OSHA standards for lead, cadmium, and arsenic, including the requirement for employee showers and also made recommendations regarding local exhaust ventilation and air monitoring for welding gases. The full report is available at <http://www.cdc.gov/niosh/hhe/reports/pdfs/2003-0367-2973.pdf>. More information on HHEs can be found at <http://www.cdc.gov/niosh/hhe>.

Upcoming Events

Internoise 2005

The 34th *International Congress and Exposition on Noise Control Engineering-InterNoise 2005* will be held August 7-10, 2005 in Rio de Janeiro, Brazil. The conference is sponsored by the International Institute of Noise Control Engineering (I-INCE) and organized by the Brazilian Acoustical Society (SOBRAC) and the Iberoamerican Federation of Acoustics. The conference theme is Environmental Noise Control. More information can be found at <http://www.internoise2005.org.br/welcome.aspx>.

North American Congress of Clinical Toxicology (NACCT) 2005

The American Academy of Clinical Toxicology and the American Association of Poison Control Centers will host the *North American Congress of Clinical Toxicology 2005*, September 9-14, 2005 in Orlando, Florida. The agenda features three NIOSH-related sessions: Developing an Occupational and Environmental Toxicology Research Agenda, Occupational/NIOSH Case Files, and an EPA/NIOSH/OSHA workshop on risk assessment and n-propyl bromide. More information on the conference can be found at <http://www.clintox.org>.

World Safety Congress and National Safety Council to Meet in September

Safety and health experts from around the world will gather in Orlando, Florida this fall for two prominent international and national conferences. On September 18-22, 2005, NIOSH along with a number of other private and public sector organizations will co-support the XVIIth World Congress on Safety and Health at Work. The Congress, jointly organized by the International Labor Organization, the International Social Security Association and the National Safety Council, will serve as an international forum for approximately 3000 professionals to exchange ideas, research, and best practices on highly topical issues in the area of occupational safety and health. This marks the first time the Congress will be held in the U.S. <http://www.safety2005.org>.



Coinciding with the World Safety Congress, the National Safety Council Congress and Expo will run from September 21-23, 2005 at the same location. The Congress will feature over 200 sessions ranging from broad-based to industry-specific topics for the seasoned professional and newcomers to safety and health. The Expo is the world's largest annual safety and health exhibit, where more than 750 exhibiting companies demonstrate and showcase the latest in safety materials and products. <http://www.congress.nsc.org>.



Advanced Personal Protective Equipment - Challenges in Protecting First Responders

The NIOSH National Personal Protective Technology Laboratory (NPPTL) and the Virginia Polytechnic Institute and State University are sponsoring *Advanced Personal Protective Equipment - Challenges in Protecting First Responders*. The conference will be held October 16-18, 2005 at the Virginia Tech and Skelton Conference Center in Blacksburg, Va.

Attendees will learn about the hazards posed by emerging threats, the application of personal protective equipment (PPE) technology to these threats, and associated challenges with selecting and interfacing different PPE items. The emphasis of the conference will be on practical issues of threat accommodation, standards, regulations, applications of best practices, manufacturing and distribution issues, PPE decision-making and purchasing, and multi-PPE integration. More information on the conference can be found at <http://www.conted.vt.edu/appe> or by contacting Tom Fisher at TFisher@cdc.gov.

Work, Stress and Health 2006: Making a Difference in the Workplace

NIOSH, the American Psychological Association, the National Institute of Justice of the U.S. Department of Justice, the National Institute on Disability and Rehabilitation Research of the U.S. Department of Education, and the U.S. Department of Labor, will convene the sixth international conference on occupational stress and health, *Work, Stress, and Health 2006: Making a Difference in the Workplace* in Miami, Florida., March 2-4, 2006, at the Hyatt Regency Miami Hotel. The conference is designed to address the constantly changing nature of work, and the implications of these changes for the health, safety, and well-being of workers. In keeping with the conference theme of "making a difference in the workplace," there will be a particular focus on the translation of research to practice and workplace programs, policies, practices, case experiences, and other efforts to prevent stress in today's workplace. More information about the conference can be found at: <http://www.apa.org/pi/work/wsh2006.html>.

"Acronyms" of the Month

PELs and RELs

PELs or **Permissible Exposure Limits** are set by the Occupational Safety and Health Administration (OSHA) to protect workers against the health effects of exposure to hazardous substances. PELs are enforceable regulatory limits on the amount or concentration of a substance in the air and may also contain a skin designation.

RELs or **Recommended Exposure Limits** are occupational exposure limits recommended by NIOSH as being protective of worker safety and health over a working lifetime. RELs are used in combination with engineering and work practice controls, exposure and medical monitoring, labeling, posting, worker training and personal protective equipment.

NIOSH eNews on the Web: www.cdc.gov/niosh/enews/

NIOSH eNews is Brought to You By:

Director	John Howard, M.D.
Editor in Chief	Max Lum
Story Editor	Tara Williams
Public Affairs Officer	Fred Blosser
Technical Lead	Glenn Doyle
Technical Support	Joseph Cauley

Please send your comments and suggestions to us at nioshenews@cdc.gov.